

ML

Notice of Allowability

Application No.

10/014,512

Applicant(s)

ARAKAWA ET AL.

Examiner

Art Unit

Ling-Siu Choi

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed 04/01/2005.
2. ☒ The allowed claim(s) is/are 1-11.
3. ☒ The drawings filed on 14 December 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

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DETAILED ACTION

1. This Office Action is in response to the Reply filed April 1, 2005. Claims 1-11 are now pending.

Allowable Subject Matter

2. Claims 1-11 are allowed.
3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Haraguchi et al. (JP 9-87526) and Haraguchi et al. (JP 8-283425).

organic-inorganic hybrid polymer materials	an organic polymer component
	a metal oxide component
wherein (a) the organic polymer component and the metal oxide component are covalently bonded each other and (b) concentration of the organic polymer component or of the metal oxide component is increased or decreased in the direction of thickness of the material (composition gradient)	

(summary of claim 1)

Haraguchi et al.'526 disclose an organic-inorganic hybrid composite having a

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compositional gradient, being obtained by the steps of (a) immersing a solid organic polymer in a metal alkoxide solution, (b) stopping the impregnation before the polymer is uniformly impregnated with the metal alkoxide to form the organic-inorganic hybrid composite having a gradient metal alkoxide concentration inside the composite, and (c) immersing the resulting composite in water and/or an aqueous solution of acid catalyst to condense the metal alkoxide to form metal oxide (abstract). However, Haraguchi et al.'526 do not teach or fairly suggest an organic-inorganic hybrid composite having the organic polymer component and the metal oxide component being covalently bonded each other and in a composition gradient.

Haraguchi et al.'425 disclose an organic-inorganic hybrid composite having a metal oxide continuously changing from the surface of the composite toward the depth, wherein the ratio of the maximum content to the minimum content is at least 1.5, the composite being obtained by the steps of (a) applying a homogeneous solution containing the organic polymer and a metal alkoxide on an organic polymer or inorganic base material, (b) keeping the coated base material in the air containing water and/or polymerization catalyst for the alkoxide, and (c) drying the coated base material (Abstract). However, Haraguchi et al.'425 do not teach or fairly suggest an organic-inorganic hybrid composite having the organic polymer component and the metal oxide component being covalently bonded each other and in a composition gradient.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

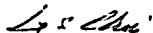
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Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner=s supervisor, David Wu, can be reach on 571-272-1114.



**LING-SUI CHOI
PRIMARY EXAMINER**

April 28, 2005